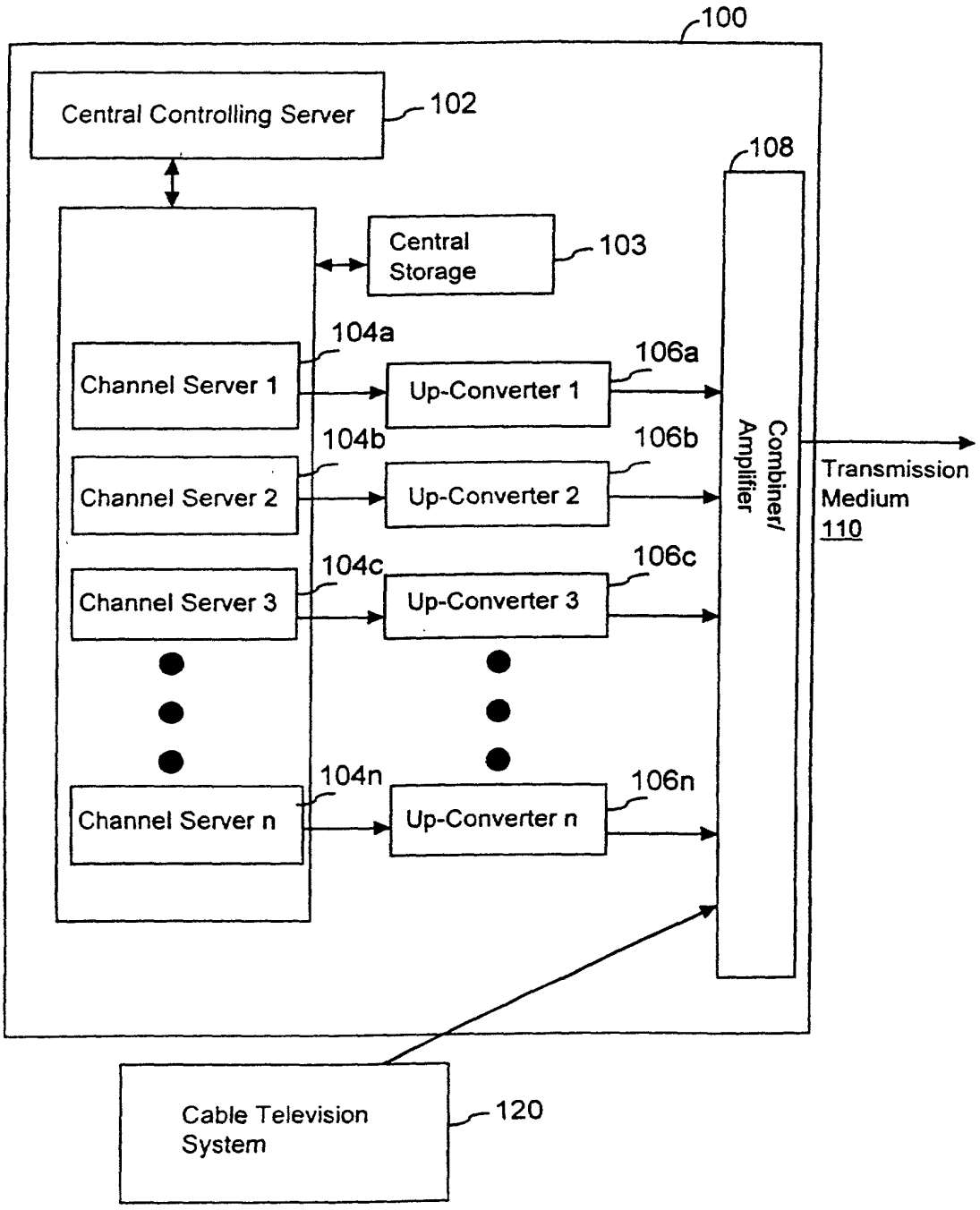
100
Central Controlling Server
102
108
Central Storage
103
104a
Channel Server 1
Up-Converter 1
106a
104b
Channel Server 2
Up-Converter 2
106b
Combiner/ Amplifier
Transmission Medium 110
104c
Channel Server 3
Up-Converter 3
106c
104n
Channel Server n
Up-Converter n
106n
Cable Television System
120

FIG. 1A

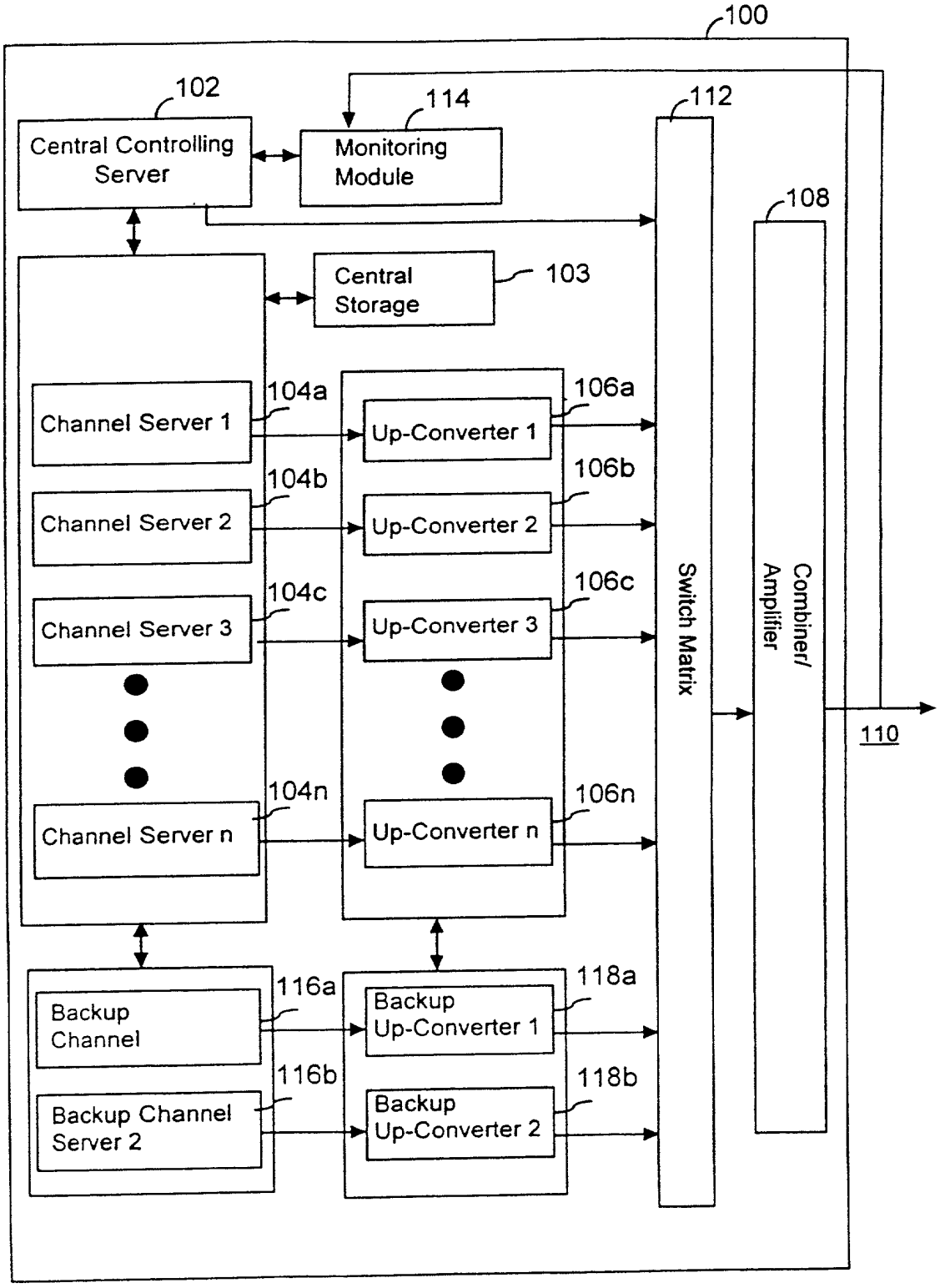
100
102
Central Controlling Server
114
Monitoring Module
112
108
Central Storage
103
Channel Server 1
104a
Up-Converter 1
106a
Channel Server 2
104b
Up-Converter 2
106b
Channel Server 3
104c
Up-Converter 3
106c
Channel Server n
104n
Up-Converter n
106n
Switch Matrix
Combiner/ Amplifier
110
Backup Channel
116a
Backup Up-Converter 1
118a
Backup Channel Server 2
116b
Backup Up-Converter 2
118b

FIG. 1B

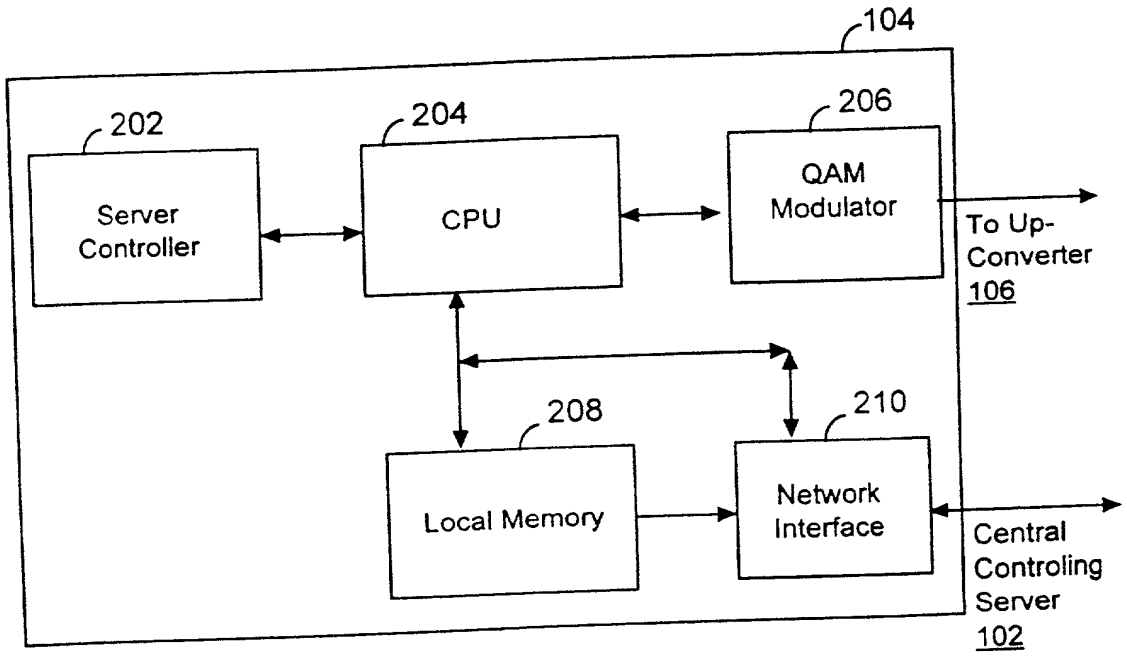
104
202
Server Controller
204
CPU
206
QAM Modulator
To Up-Converter 106
208
Local Memory
210
Network Interface
Central Controling Server 102

FIG. 2

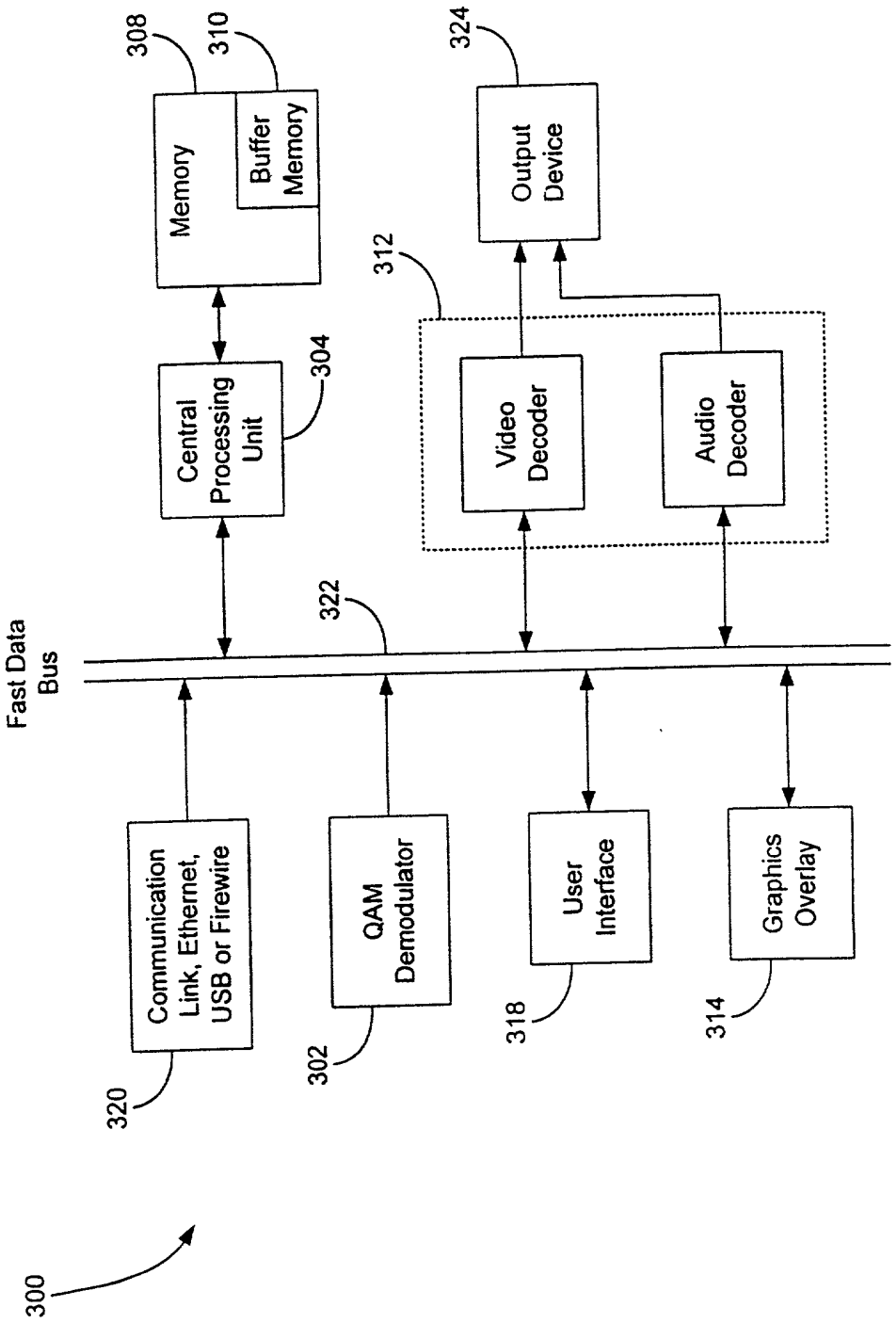
300
Fast Data Bus
322
Communication Link, Ethernet, USB or Firewire
320
QAM Demodulator
302
User Interface
318
Graphics Overlay
314
Central Processing Unit
304
Memory
308
Buffer Memory
310
312
Video Decoder
Audio Decoder
Output Device
324

FIG. 3

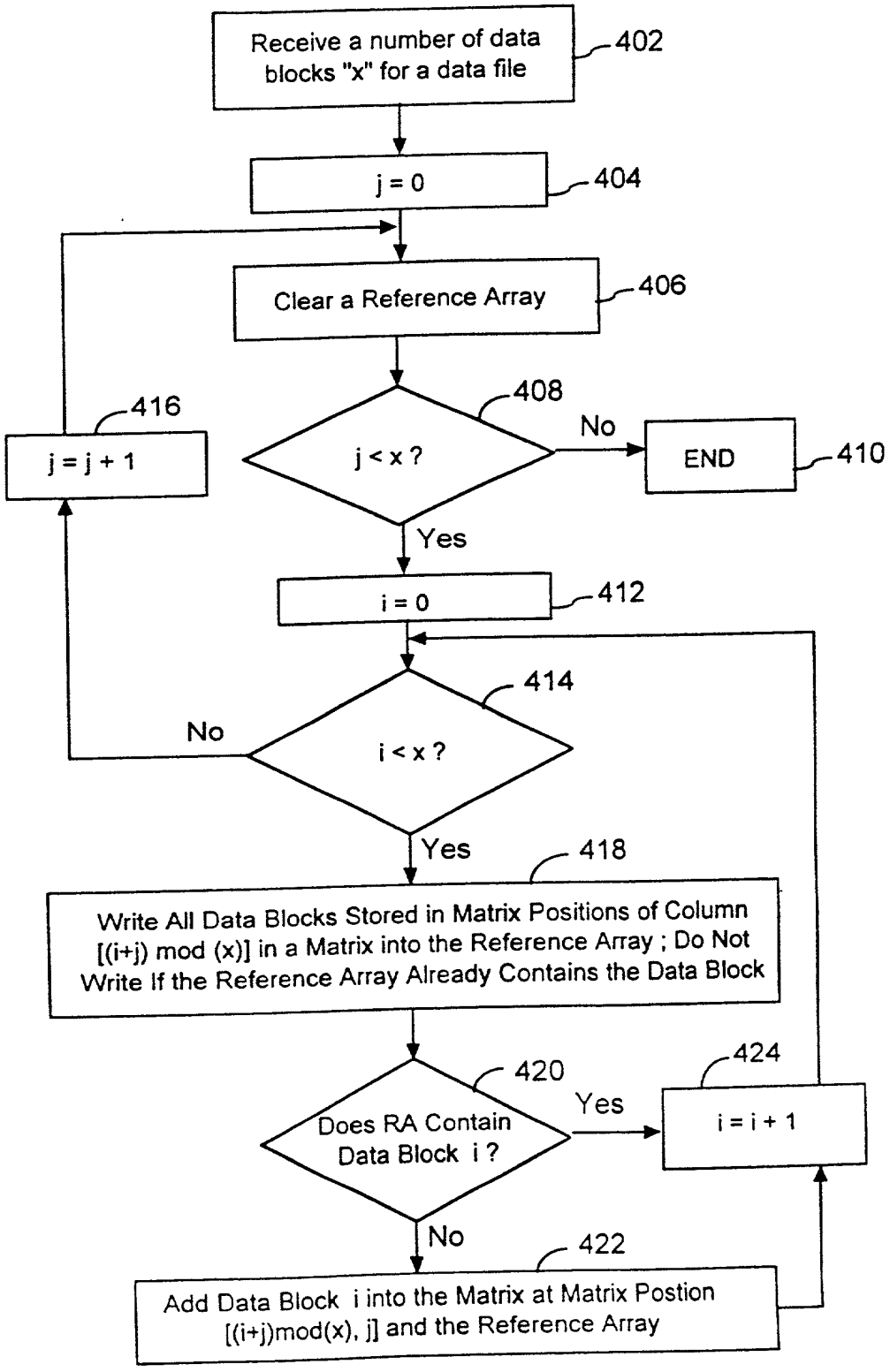
Receive a number of data blocks "x" for a data file
402
j = 0
404
Clear a Reference Array
406
j < x ?
408
No
END
410
Yes
i = 0
412
i < x ?
414
No
j = j + 1
416
Yes
Write All Data Blocks Stored in Matrix Positions of Column [(i+j) mod (x)] in a Matrix into the Reference Array ; Do Not Write If the Reference Array Already Contains the Data Block
418
Does RA Contain Data Block i ?
420
Yes
i = i + 1
424
No
Add Data Block i into the Matrix at Matrix Postion [(i+j)mod(x), j] and the Reference Array
422

FIG. 4

Time Slot	Bandwidth			
TS0	blk0	<-->	<-->	<-->
TS1	blk0	blk1	blk3	<-->
TS2	blk0	blk2	<-->	<-->
TS3	blk0	blk1	blk3	blk4
TS4	blk0	blk4	<-->	<-->
TS5	blk0	blk1	blk2	blk5

FIG. 5

Scheduling Matrix

Time Slot	Bandwidth			
TS0	blk0	blk0	blk1	blk3
TS1	blk0	blk2	blk0	blk1
TS2	blk3	blk4	blk0	blk4
TS3	blk0	blk1	blk2	blk5
TS4				
TS5				

FIG. 6

Scheduling Matrix with Idle Bandwidth Filled

Time Slot	Bandwidth			
TS0	blk0	blk0	blk1	blk3
TS1	blk0	blk2	blk0	blk1
TS2	blk3	blk4	blk0	blk4
TS3	blk0	blk1	blk2	blk5

FIG. 7

New Reduced Idle Bandwidth Scheduling Matrix

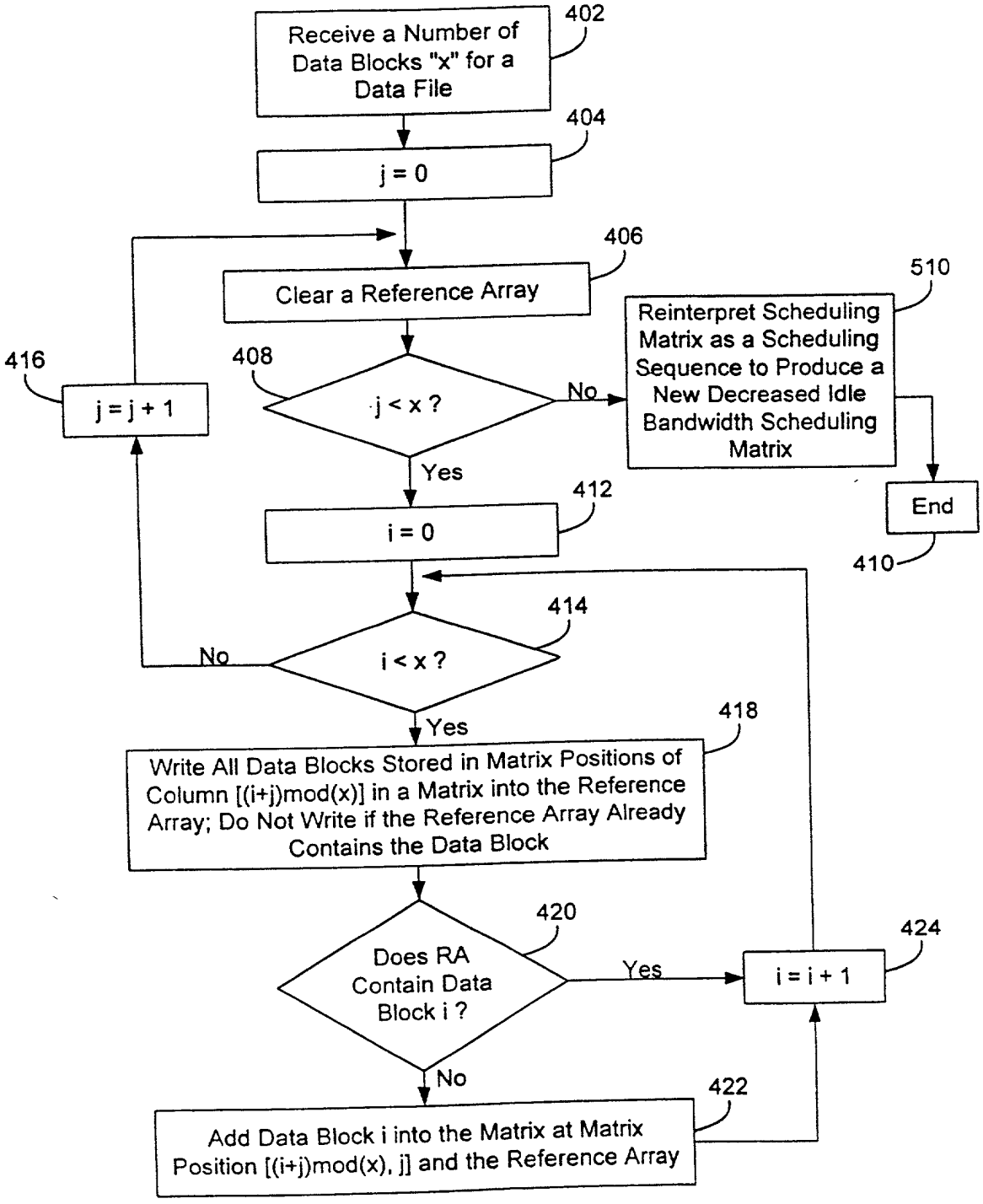
Receive a Number of Data Blocks "x" for a Data File
402
j = 0
404
Clear a Reference Array
406
j < x ?
408
No
Reinterpret Scheduling Matrix as a Scheduling Sequence to Produce a New Decreased Idle Bandwidth Scheduling Matrix
510
End
410
Yes
j = j + 1
416
i = 0
412
i < x ?
414
No
Yes
Write All Data Blocks Stored in Matrix Positions of Column [(i+j)mod(x)] in a Matrix into the Reference Array; Do Not Write if the Reference Array Already Contains the Data Block
418
Does RA Contain Data Block i ?
420
Yes
i = i + 1
424
No
Add Data Block i into the Matrix at Matrix Position [(i+j)mod(x), j] and the Reference Array
422

FIG. 8

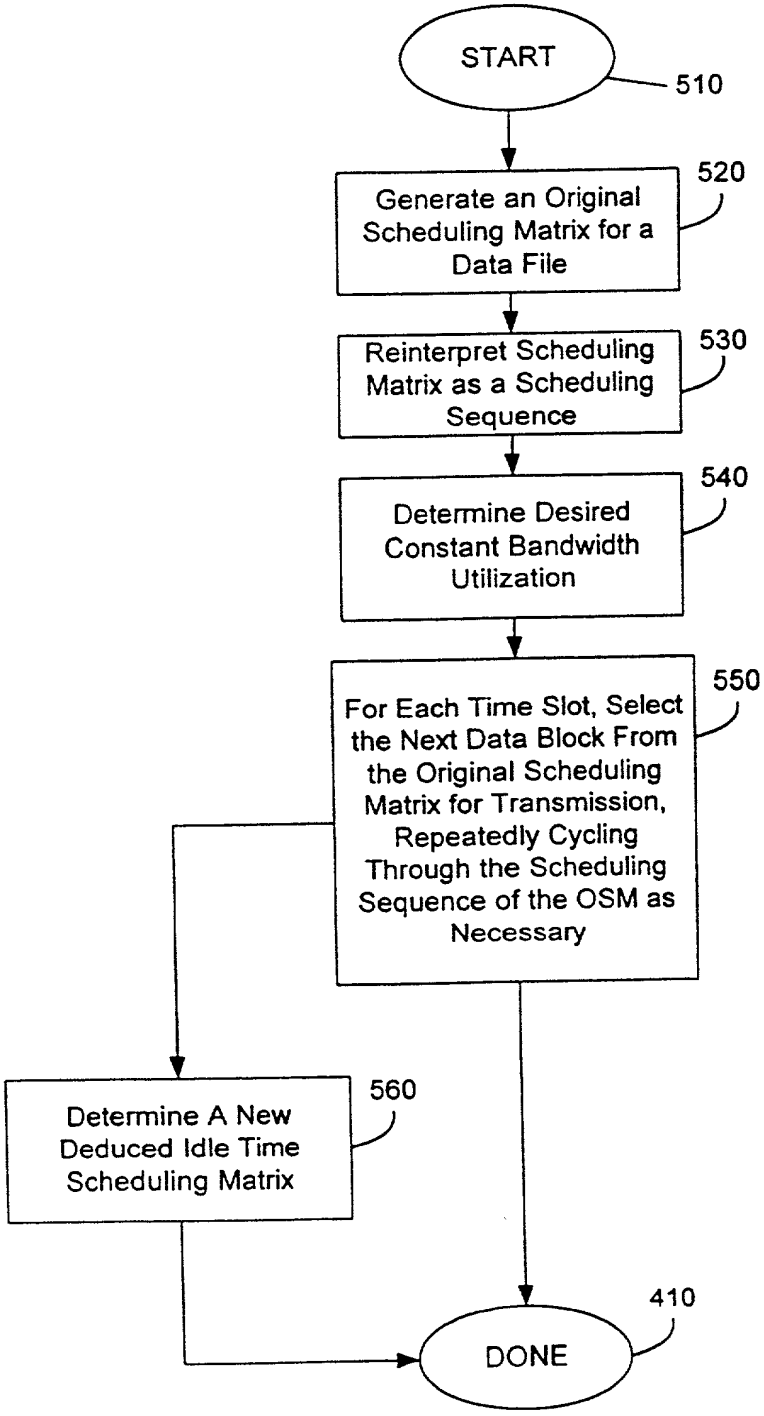
START
510
Generate an Original Scheduling Matrix for a Data File
520
Reinterpret Scheduling Matrix as a Scheduling Sequence
530
Determine Desired Constant Bandwidth Utilization
540
For Each Time Slot, Select the Next Data Block From the Original Scheduling Matrix for Transmission, Repeatedly Cycling Through the Scheduling Sequence of the OSM as Necessary
550
Determine A New Deduced Idle Time Scheduling Matrix
560
DONE
410

FIG. 9

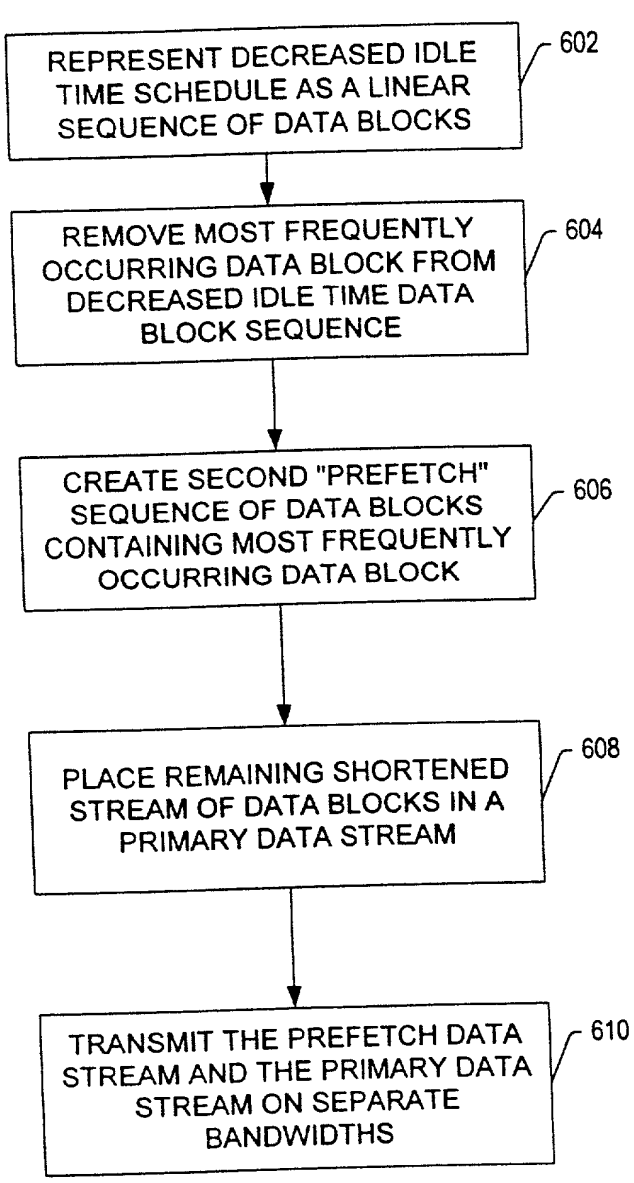
600
REPRESENT DECREASED IDLE TIME SCHEDULE AS A LINEAR SEQUENCE OF DATA BLOCKS
602
REMOVE MOST FREQUENTLY OCCURRING DATA BLOCK FROM DECREASED IDLE TIME DATA BLOCK SEQUENCE
604
CREATE SECOND "PREFETCH" SEQUENCE OF DATA BLOCKS CONTAINING MOST FREQUENTLY OCCURRING DATA BLOCK
606
PLACE REMAINING SHORTENED STREAM OF DATA BLOCKS IN A PRIMARY DATA STREAM
608
TRANSMIT THE PREFETCH DATA STREAM AND THE PRIMARY DATA STREAM ON SEPARATE BANDWIDTHS
610

FIG. 10

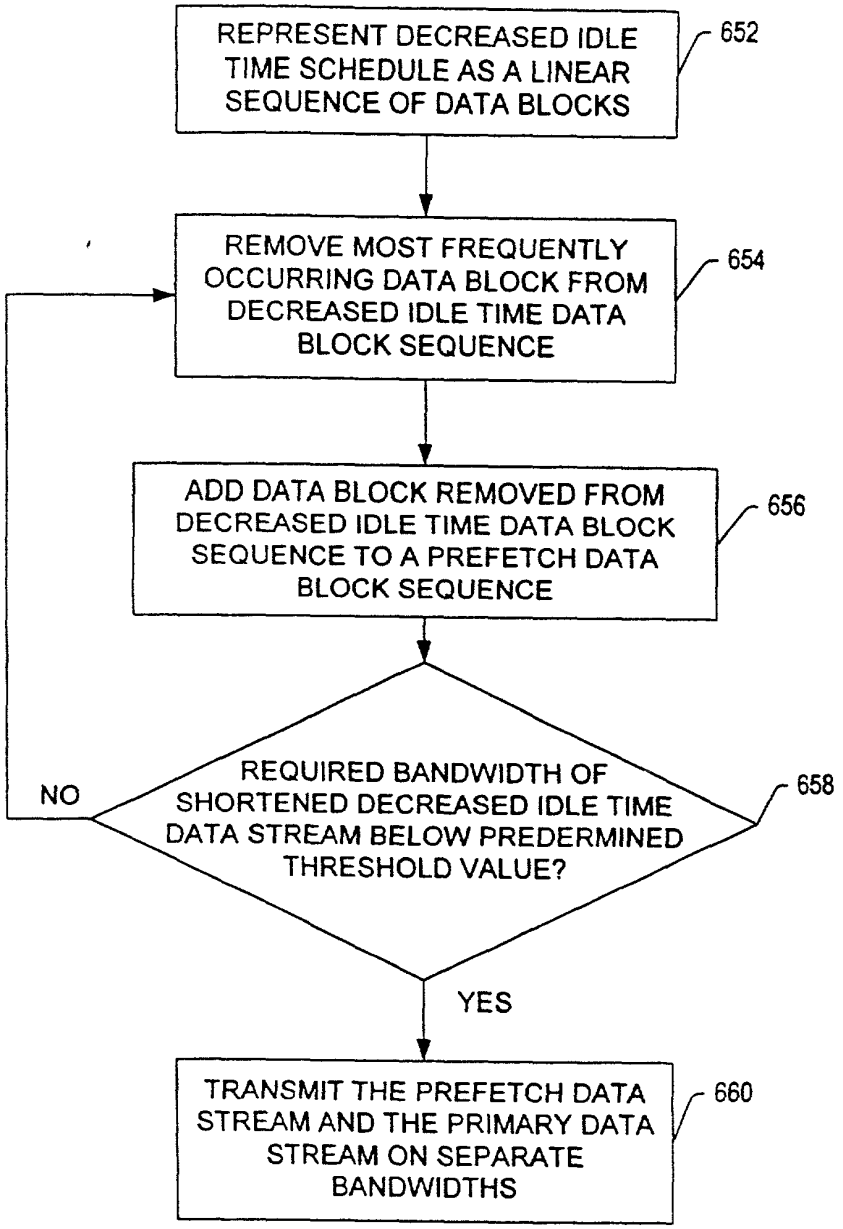
650
REPRESENT DECREASED IDLE TIME SCHEDULE AS A LINEAR SEQUENCE OF DATA BLOCKS
652
REMOVE MOST FREQUENTLY OCCURRING DATA BLOCK FROM DECREASED IDLE TIME DATA BLOCK SEQUENCE
654
ADD DATA BLOCK REMOVED FROM DECREASED IDLE TIME DATA BLOCK SEQUENCE TO A PREFETCH DATA BLOCK SEQUENCE
656
REQUIRED BANDWIDTH OF SHORTENED DECREASED IDLE TIME DATA STREAM BELOW PREDERMINED THRESHOLD VALUE?
658
NO
YES
TRANSMIT THE PREFETCH DATA STREAM AND THE PRIMARY DATA STREAM ON SEPARATE BANDWIDTHS
660

FIG. 11

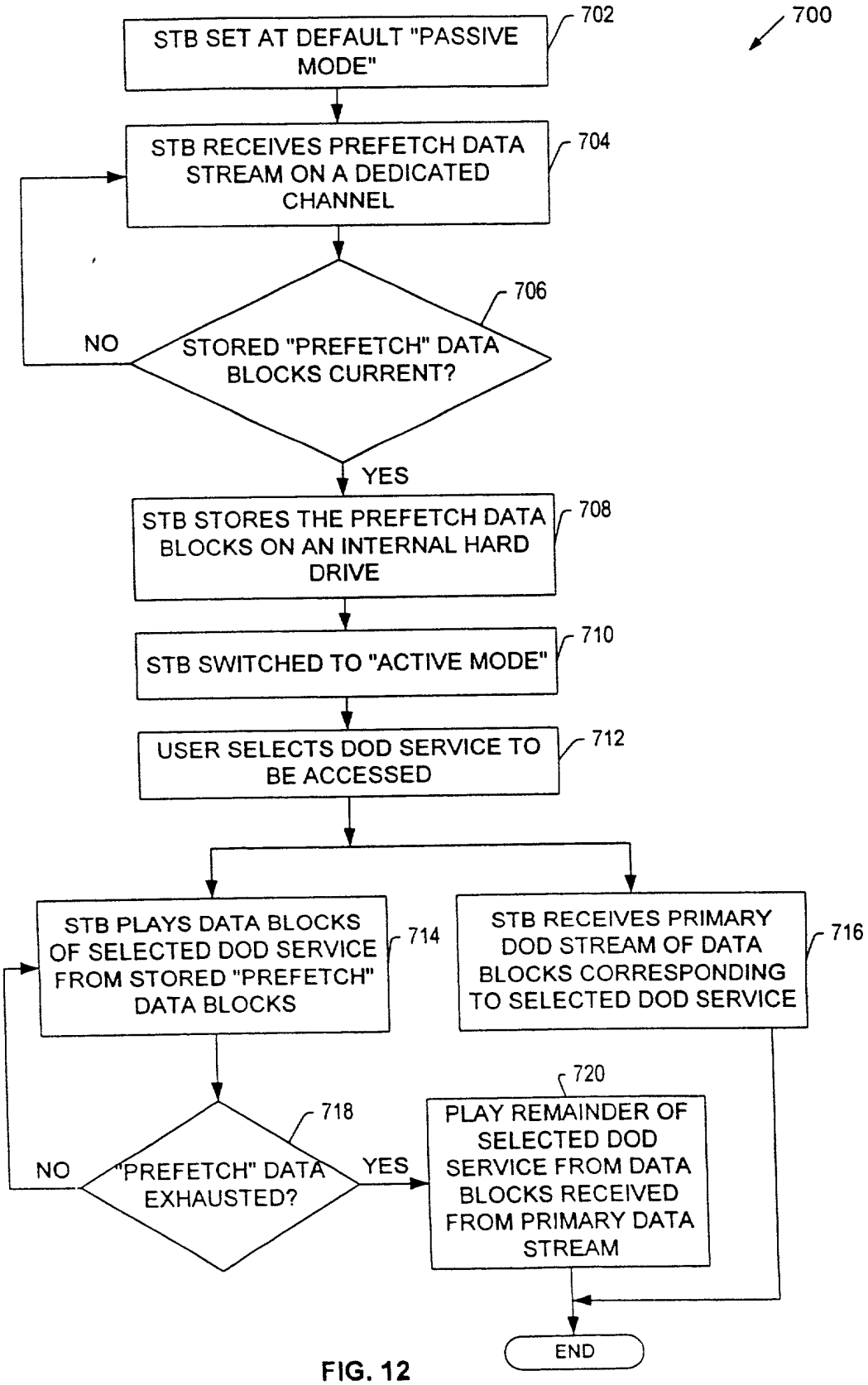
700
STB SET AT DEFAULT "PASSIVE MODE"
702
STB RECEIVES PREFETCH DATA STREAM ON A DEDICATED CHANNEL
704
STORED "PREFETCH" DATA BLOCKS CURRENT?
706
NO
YES
STB STORES THE PREFETCH DATA BLOCKS ON AN INTERNAL HARD DRIVE
708
STB SWITCHED TO "ACTIVE MODE"
710
USER SELECTS DOD SERVICE TO BE ACCESSED
712
STB PLAYS DATA BLOCKS OF SELECTED DOD SERVICE FROM STORED "PREFETCH" DATA BLOCKS
714
STB RECEIVES PRIMARY DOD STREAM OF DATA BLOCKS CORRESPONDING TO SELECTED DOD SERVICE
716
"PREFETCH" DATA EXHAUSTED?
718
NO
YES
PLAY REMAINDER OF SELECTED DOD SERVICE FROM DATA BLOCKS RECEIVED FROM PRIMARY DATA STREAM
720
END

FIG. 12